SEQUENCE LISTING

<110> Shunichi SHIOZAWA
      Koichiro KOMAI

<120> RHEUMATOID ARTHRITIS GENE AND METHOD FOR DIAGNOSING RHEUMATOID ARTHRITIS

<130> 2001-1298A/LC/00653

<140> 09/936,989
<141> 2001-10-30

<150> PCT/JP00/01697
<151> 1999-10-23

<150> JP11-116933
<151> 1999-03-20

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<170> PatentIn Ver. 2.1

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Ala Ser Phe Pro Gly Asn Leu His Leu Val Leu Val Leu Arg Pro Thr
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agc ttt ctt caa cga acg ttc aca gac att gga ttt tgg ttt agt cag   321
Ser Phe Leu Gln Arg Thr Phe Thr Asp Ile Gly Phe Trp Phe Ser Gln
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gag gat ttt atg cct aaa tta cca gtt gtt atg ctg agc tca gtt agt   369
Glu Asp Phe Met Pro Lys Leu Pro Val Val Met Leu Ser Ser Val Ser
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gat ttg ctg aca tac att gat gac aag caa tta acc cct gag tta ggc    417
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            70                  75                  80

ggc acc ttg cag tac tgc cac agt gaa tgg atc atc ttc aga aat gct    465
Gly Thr Leu Gln Tyr Cys His Ser Glu Trp Ile Ile Phe Arg Asn Ala
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ata gaa aat ttt gcc ctc aca gtg aaa gaa atg gct cag atg tta cag    513
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tcc ttt gga act gaa ctg gct gag aca gaa cta cca gat gat att ccc    561
Ser Phe Gly Thr Glu Leu Ala Glu Thr Glu Leu Pro Asp Asp Ile Pro
    115                 120                 125

tca ata gaa gaa att ctg gca att cgt gct gaa agg tat cat ctg ttg    609
Ser Ile Glu Glu Ile Leu Ala Ile Arg Ala Glu Arg Tyr His Leu Leu
130                 135                 140                 145

aag aat gat att aca gct gta acc aaa gaa gga aaa att ctg cta aca    657
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aat ctg gaa gtg cct gac act gaa gga gct gtc agt tca aga cta gaa    705
Asn Leu Glu Val Pro Asp Thr Glu Gly Ala Val Ser Ser Arg Leu Glu
            165                 170                 175

tgt cat cgg caa ata agt ggt gac tgg caa act att aat aag ttg ctg    753
Cys His Arg Gln Ile Ser Gly Asp Trp Gln Thr Ile Asn Lys Leu Leu
            180                 185                 190

act caa gta cat gat atg gaa aca gct ttt gat gga ttt tgg gaa aaa    801
Thr Gln Val His Asp Met Glu Thr Ala Phe Asp Gly Phe Trp Glu Lys
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cat caa tta aaa atg gag cag tat ctg caa cta tgg aag ttt gag cag    849
His Gln Leu Lys Met Glu Gln Tyr Leu Gln Leu Trp Lys Phe Glu Gln
210                 215                 220                 225

gat ttt caa cag ctt gtg act gaa gtt gaa ttt cta tta aac caa caa    897
Asp Phe Gln Gln Leu Val Thr Glu Val Glu Phe Leu Leu Asn Gln Gln
            230                 235                 240

gca gaa ctg gct gat gta aca ggg act ata gct caa gta aaa caa aaa    945
Ala Glu Leu Ala Asp Val Thr Gly Thr Ile Ala Gln Val Lys Gln Lys
            245                 250                 255

ata aaa aaa ttg gaa aac tta gat gaa aat tct cag gag cta tta tca    993
Ile Lys Lys Leu Glu Asn Leu Asp Glu Asn Ser Gln Glu Leu Leu Ser
            260                 265                 270

aag gcc cag ttt gtg ata tta cat gga cac aag ctt gca gca aat cac   1041
Lys Ala Gln Phe Val Ile Leu His Gly His Lys Leu Ala Ala Asn His
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2

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His Tyr Ala Leu Asp Leu Ile Cys Gln Arg Cys Asn Glu Leu Arg Tyr
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ctt tct gat att ttg gtt aat gag ata aaa gca aaa cgg ata caa ctc   1137
Leu Ser Asp Ile Leu Val Asn Glu Ile Lys Ala Lys Arg Ile Gln Leu
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agc agg acc ttc aaa atg cat aaa ctc cta cag cag gct cgt caa tgc   1185
Ser Arg Thr Phe Lys Met His Lys Leu Leu Gln Gln Ala Arg Gln Cys
                325                 330                 335

tgt gat gaa ggg gaa tgt ctt cta gct aat cag gaa ata gat aag ttt   1233
Cys Asp Glu Gly Glu Cys Leu Leu Ala Asn Gln Glu Ile Asp Lys Phe
                340                 345                 350

cag tct aaa gaa gat gct cag aaa gct ctc caa gac att gaa aat ttt   1281
Gln Ser Lys Glu Asp Ala Gln Lys Ala Leu Gln Asp Ile Glu Asn Phe
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ctt gaa atg gct cta ccc ttt ata aat tat gaa cct gaa aca ctg cag   1329
Leu Glu Met Ala Leu Pro Phe Ile Asn Tyr Glu Pro Glu Thr Leu Gln
370                 375                 380                 385

tat gaa ttt gat gta ata tta tct cct gag ctt aag gtt caa atg aag   1377
Tyr Glu Phe Asp Val Ile Leu Ser Pro Glu Leu Lys Val Gln Met Lys
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act ata caa ctc aag ctt gaa aac att cga agt ata ttt gag aac cag   1425
Thr Ile Gln Leu Lys Leu Glu Asn Ile Arg Ser Ile Phe Glu Asn Gln
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cag gct ggt ttc agg aac ctg gca gat aag cat gtg agg cca atc caa   1473
Gln Ala Gly Phe Arg Asn Leu Ala Asp Lys His Val Arg Pro Ile Gln
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ttt gtg gta ccc aca cct gaa aat ttg gtc aca tct ggg aca cca ttt   1521
Phe Val Val Pro Thr Pro Glu Asn Leu Val Thr Ser Gly Thr Pro Phe
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ttt tca tct aaa caa ggg aag aag act tgg aga caa aat cag agc aac   1569
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tta aaa att gaa gtg gtg cct gat tgt cag gag aag aga agt tct ggt   1617
Leu Lys Ile Glu Val Val Pro Asp Cys Gln Glu Lys Arg Ser Ser Gly
                470                 475                 480

cca tcc tcc agt ttg gac aat ggc aat agc ttg gat gtt tta aag aac   1665
Pro Ser Ser Ser Leu Asp Asn Gly Asn Ser Leu Asp Val Leu Lys Asn
                485                 490                 495

cac gta cta aat gaa ctg ata cag act gag aga gtt tat gtt cga gaa   1713
His Val Leu Asn Glu Leu Ile Gln Thr Glu Arg Val Tyr Val Arg Glu
                500                 505                 510

ctg tat act gtt ttg ttg ggt tat aga gcg gag atg gat aat cca gag   1761
Leu Tyr Thr Val Leu Leu Gly Tyr Arg Ala Glu Met Asp Asn Pro Glu
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3

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atg ttt gat ctt atg cca cct ctc ctg aga aat aaa aag gac att ctc   1809
Met Phe Asp Leu Met Pro Pro Leu Leu Arg Asn Lys Lys Asp Ile Leu
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ttt gga aac atg gca gaa ata tat gaa ttc cat aac gac att ttc ttg   1857
Phe Gly Asn Met Ala Glu Ile Tyr Glu Phe His Asn Asp Ile Phe Leu
                550                 555                 560

agc agc ctg gaa aat tgt gct cat gct cca gaa aga gtg gga cct tgt   1905
Ser Ser Leu Glu Asn Cys Ala His Ala Pro Glu Arg Val Gly Pro Cys
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ttc ctg gaa agg aag gat gat ttt cag atg tat gca aaa tat tgt cag   1953
Phe Leu Glu Arg Lys Asp Asp Phe Gln Met Tyr Ala Lys Tyr Cys Gln
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aat aag ccc aga tca gaa aca att tgg agg aag tat tca gaa tgc gca   2001
Asn Lys Pro Arg Ser Glu Thr Ile Trp Arg Lys Tyr Ser Glu Cys Ala
595                 600                 605

ttt ttc cag gaa tgt caa aga aag tta aaa cac aga ctt aga ctg gat   2049
Phe Phe Gln Glu Cys Gln Arg Lys Leu Lys His Arg Leu Arg Leu Asp
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tcc tat tta ctc aaa cca gtg caa cga atc act aaa tat cag tta ttg   2097
Ser Tyr Leu Leu Lys Pro Val Gln Arg Ile Thr Lys Tyr Gln Leu Leu
            630                 635                 640

ttg aag gag cta tta aaa tat agc aaa gac tgt gaa ggt tct gct ctg   2145
Leu Lys Glu Leu Leu Lys Tyr Ser Lys Asp Cys Glu Gly Ser Ala Leu
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ttg aag aag gca ctc gat gca atg ctg gat tta ctg aag tca gtt aat   2193
Leu Lys Lys Ala Leu Asp Ala Met Leu Asp Leu Leu Lys Ser Val Asn
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gat tct atg cat cag att gca ata aat ggc tat att gga aac tta aat   2241
Asp Ser Met His Gln Ile Ala Ile Asn Gly Tyr Ile Gly Asn Leu Asn
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gaa ctg ggc aag atg ata atg caa ggt gga ttc agc gtt tgg ata ggg   2289
Glu Leu Gly Lys Met Ile Met Gln Gly Gly Phe Ser Val Trp Ile Gly
690                 695                 700                 705

cac aag aaa ggt gct aca aaa atg aag gat ttg gct aga ttc aaa cca   2337
His Lys Lys Gly Ala Thr Lys Met Lys Asp Leu Ala Arg Phe Lys Pro
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atg cag cga cac ctt ttc ttg tat gaa aaa gcc att gtt ttt tgc aaa   2385
Met Gln Arg His Leu Phe Leu Tyr Glu Lys Ala Ile Val Phe Cys Lys
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agg cgt gtt gaa agt gga gaa ggc tct gac aga tac ccg tca tac agt   2433
Arg Arg Val Glu Ser Gly Glu Gly Ser Asp Arg Tyr Pro Ser Tyr Ser
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aaa ggt gat aac cgc aag ttt gaa atc tgg tat ggt gaa aag gaa gaa    2529
Lys Gly Asp Asn Arg Lys Phe Glu Ile Trp Tyr Gly Glu Lys Glu Glu
770             775             780             785

gtt tat att gtc cag gct tct aat gta gat gtg aag atg acg tgg cta    2577
Val Tyr Ile Val Gln Ala Ser Asn Val Asp Val Lys Met Thr Trp Leu
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aaa gaa ata aga aat att ttg ttg aag cag cag gaa ctt ttg aca gtt    2625
Lys Glu Ile Arg Asn Ile Leu Leu Lys Gln Gln Glu Leu Leu Thr Val
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aaa aaa aga aag caa cag gat caa tta aca gaa cgg gat aag ttt cag    2673
Lys Lys Arg Lys Gln Gln Asp Gln Leu Thr Glu Arg Asp Lys Phe Gln
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att tct ctt cag cag aat gat gaa gac ctg tgt cgg aga tgg ctc tcc    2721
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Tyr Ile Asp Glu Ala Thr Met Ser Asn Gly Lys
850             855             860

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gatgttgttt tcaggttaat ggacacgcaa agaaaccaca gcacatactt cttttctttc  2887

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Thr Ser Phe Leu Gln Arg Thr Phe Thr Asp Ile Gly Phe Trp Phe Ser
            35                  40                  45

Gln Glu Asp Phe Met Pro Lys Leu Pro Val Val Met Leu Ser Ser Val
    50                  55                  60

Ser Asp Leu Leu Thr Tyr Ile Asp Asp Lys Gln Leu Thr Pro Glu Leu
65                  70                  75                  80

Gly Gly Thr Leu Gln Tyr Cys His Ser Glu Trp Ile Ile Phe Arg Asn
            85                  90                  95

Ala Ile Glu Asn Phe Ala Leu Thr Val Lys Glu Met Ala Gln Met Leu
            100                 105                 110

Gln Ser Phe Gly Thr Glu Leu Ala Glu Thr Glu Leu Pro Asp Asp Ile
            115                 120                 125

Pro Ser Ile Glu Glu Ile Leu Ala Ile Arg Ala Glu Arg Tyr His Leu
    130                 135                 140

Leu Lys Asn Asp Ile Thr Ala Val Thr Lys Glu Gly Lys Ile Leu Leu
145                 150                 155                 160

Thr Asn Leu Glu Val Pro Asp Thr Glu Gly Ala Val Ser Ser Arg Leu
            165                 170                 175

Glu Cys His Arg Gln Ile Ser Gly Asp Trp Gln Thr Ile Asn Lys Leu
            180                 185                 190

Leu Thr Gln Val His Asp Met Glu Thr Ala Phe Asp Gly Phe Trp Glu
            195                 200                 205

Lys His Gln Leu Lys Met Glu Gln Tyr Leu Gln Leu Trp Lys Phe Glu
    210                 215                 220

Gln Asp Phe Gln Gln Leu Val Thr Glu Val Glu Phe Leu Leu Asn Gln
225                 230                 235                 240

Gln Ala Glu Leu Ala Asp Val Thr Gly Thr Ile Ala Gln Val Lys Gln
            245                 250                 255

Lys Ile Lys Lys Leu Glu Asn Leu Asp Glu Asn Ser Gln Glu Leu Leu
            260                 265                 270

Ser Lys Ala Gln Phe Val Ile Leu His Gly His Lys Leu Ala Ala Asn
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Leu Ser Arg Thr Phe Lys Met His Lys Leu Leu Gln Gln Ala Arg Gln
                325   330   335

Cys Cys Asp Glu Gly Glu Cys Leu Leu Ala Asn Gln Glu Ile Asp Lys
                340   345   350

Phe Gln Ser Lys Glu Asp Ala Gln Lys Ala Leu Gln Asp Ile Glu Asn
                355   360   365

Phe Leu Glu Met Ala Leu Pro Phe Ile Asn Tyr Glu Pro Glu Thr Leu
    370   375   380

Gln Tyr Glu Phe Asp Val Ile Leu Ser Pro Glu Leu Lys Val Gln Met
385   390   395   400

Lys Thr Ile Gln Leu Lys Leu Glu Asn Ile Arg Ser Ile Phe Glu Asn
                405   410   415

Gln Gln Ala Gly Phe Arg Asn Leu Ala Asp Lys His Val Arg Pro Ile
                420   425   430

Gln Phe Val Val Pro Thr Pro Glu Asn Leu Val Thr Ser Gly Thr Pro
                435   440   445

Phe Phe Ser Ser Lys Gln Gly Lys Lys Thr Trp Arg Gln Asn Gln Ser
    450   455   460

Asn Leu Lys Ile Glu Val Val Pro Asp Cys Gln Glu Lys Arg Ser Ser
465   470   475   480

Gly Pro Ser Ser Ser Leu Asp Asn Gly Asn Ser Leu Asp Val Leu Lys
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Asn His Val Leu Asn Glu Leu Ile Gln Thr Glu Arg Val Tyr Val Arg
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Glu Leu Tyr Thr Val Leu Leu Gly Tyr Arg Ala Glu Met Asp Asn Pro
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Glu Met Phe Asp Leu Met Pro Pro Leu Leu Arg Asn Lys Lys Asp Ile
    530   535   540

Leu Phe Gly Asn Met Ala Glu Ile Tyr Glu Phe His Asn Asp Ile Phe
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Leu Ser Ser Leu Glu Asn Cys Ala His Ala Pro Glu Arg Val Gly Pro
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Cys Phe Leu Glu Arg Lys Asp Asp Phe Gln Met Tyr Ala Lys Tyr Cys
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7

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Gln Asn Lys Pro Arg Ser Glu Thr Ile Trp Arg Lys Tyr Ser Glu Cys
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Ala Phe Phe Gln Glu Cys Gln Arg Lys Leu Lys His Arg Leu Arg Leu
    610                 615                 620

Asp Ser Tyr Leu Leu Lys Pro Val Gln Arg Ile Thr Lys Tyr Gln Leu
625                 630                 635                     640

Leu Leu Lys Glu Leu Leu Lys Tyr Ser Lys Asp Cys Glu Gly Ser Ala
                645                 650                 655

Leu Leu Lys Lys Ala Leu Asp Ala Met Leu Asp Leu Leu Lys Ser Val
            660                 665                 670

Asn Asp Ser Met His Gln Ile Ala Ile Asn Gly Tyr Ile Gly Asn Leu
            675                 680                 685

Asn Glu Leu Gly Lys Met Ile Met Gln Gly Gly Phe Ser Val Trp Ile
    690                 695                 700

Gly His Lys Lys Gly Ala Thr Lys Met Lys Asp Leu Ala Arg Phe Lys
705                 710                 715                     720

Pro Met Gln Arg His Leu Phe Leu Tyr Glu Lys Ala Ile Val Phe Cys
            725                 730                 735

Lys Arg Arg Val Glu Ser Gly Glu Gly Ser Asp Arg Tyr Pro Ser Tyr
            740                 745                 750

Ser Phe Lys His Cys Trp Lys Met Asp Glu Val Gly Ile Thr Glu Tyr
        755                 760                 765

Val Lys Gly Asp Asn Arg Lys Phe Glu Ile Trp Tyr Gly Glu Lys Glu
    770                 775                 780

Glu Val Tyr Ile Val Gln Ala Ser Asn Val Asp Val Lys Met Thr Trp
785                 790                 795                     800

Leu Lys Glu Ile Arg Asn Ile Leu Leu Lys Gln Gln Glu Leu Leu Thr
            805                 810                 815

Val Lys Lys Arg Lys Gln Gln Asp Gln Leu Thr Glu Arg Asp Lys Phe
            820                 825                 830

Gln Ile Ser Leu Gln Gln Asn Asp Glu Asp Leu Cys Arg Arg Trp Leu
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catcaatgtt gcgttgacaa ttggaaaaga aaagtgtaat tgcgtacagg cgaa atg   177
                                                              Met
                                                                1

gca gaa gca aat ccc cgg aga ggc aag atg agg ttc aga agg aat gcg   225
Ala Glu Ala Asn Pro Arg Arg Gly Lys Met Arg Phe Arg Arg Asn Ala
                5   10   15

gct tcc ttc cct ggg aac ttg cac ttg gtt ttg gtt tta cgt cct acc   273
Ala Ser Phe Pro Gly Asn Leu His Leu Val Leu Val Leu Arg Pro Thr
            20   25   30

agc ttt ctt caa cga acg ttc aca gac att gga ttt tgg ttt agt cag   321
Ser Phe Leu Gln Arg Thr Phe Thr Asp Ile Gly Phe Trp Phe Ser Gln
        35   40   45

gag gat ttt atg cct aaa tta cca gtt gtt atg ctg agc tca gtt agt   369
Glu Asp Phe Met Pro Lys Leu Pro Val Val Met Leu Ser Ser Val Ser
    50   55   60   65

gat ttg ctg aca tac att gat gac aag caa tta acc cct gag tta ggc   417
Asp Leu Leu Thr Tyr Ile Asp Asp Lys Gln Leu Thr Pro Glu Leu Gly
                70   75   80

9

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ggc acc ttg cag tac tgc cac agt gaa tgg atc atc ttc aga aat gct    465
Gly Thr Leu Gln Tyr Cys His Ser Glu Trp Ile Ile Phe Arg Asn Ala
            85                  90                  95

ata gaa aat ttt gcc ctc aca gtg aaa gaa atg gct cag atg tta cag    513
Ile Glu Asn Phe Ala Leu Thr Val Lys Glu Met Ala Gln Met Leu Gln
            100                 105                 110

tcc ttt gga act gaa ctg gct gag aca gaa cta cca gat gat att ccc    561
Ser Phe Gly Thr Glu Leu Ala Glu Thr Glu Leu Pro Asp Asp Ile Pro
            115                 120                 125

tca ata gaa gaa att ctg gca att cgt gct gaa agg tat cat ctg ttg    609
Ser Ile Glu Glu Ile Leu Ala Ile Arg Ala Glu Arg Tyr His Leu Leu
130                 135                 140                 145

aag aat gat att aca gct gta acc aaa gaa gga aaa att ctg cta aca    657
Lys Asn Asp Ile Thr Ala Val Thr Lys Glu Gly Lys Ile Leu Leu Thr
            150                 155                 160

aat ctg gaa gtg cct gac act gaa gga gct gtc agt tca aga cta gaa    705
Asn Leu Glu Val Pro Asp Thr Glu Gly Ala Val Ser Ser Arg Leu Glu
            165                 170                 175

tgt cat cgg caa ata agt ggt gac tgg caa act att aat aag ttg ctg    753
Cys His Arg Gln Ile Ser Gly Asp Trp Gln Thr Ile Asn Lys Leu Leu
            180                 185                 190

act caa gta cat gat atg gaa aca gct ttt gat gga ttt tgg gaa aaa    801
Thr Gln Val His Asp Met Glu Thr Ala Phe Asp Gly Phe Trp Glu Lys
            195                 200                 205

cat caa tta aaa atg gag cag tat ctg caa cta tgg aag ttt gag cag    849
His Gln Leu Lys Met Glu Gln Tyr Leu Gln Leu Trp Lys Phe Glu Gln
210                 215                 220                 225

gat ttt caa cag ctt gtg act gaa gtt gaa ttt cta tta aac caa caa    897
Asp Phe Gln Gln Leu Val Thr Glu Val Glu Phe Leu Leu Asn Gln Gln
            230                 235                 240

gca gaa ctg gct gat gta aca ggg act ata gct caa gta aaa caa aaa    945
Ala Glu Leu Ala Asp Val Thr Gly Thr Ile Ala Gln Val Lys Gln Lys
            245                 250                 255

ata aaa aaa ttg gaa aac tta gat gaa aat tct cag gag cta tta tca    993
Ile Lys Lys Leu Glu Asn Leu Asp Glu Asn Ser Gln Glu Leu Leu Ser
            260                 265                 270

aag gcc cag ttt gtg ata tta cat gga cac aag ctt gca gca aat cac   1041
Lys Ala Gln Phe Val Ile Leu His Gly His Lys Leu Ala Ala Asn His
            275                 280                 285

cat tat gca ctt gat tta atc tgc cag agg tgc aat gag cta cgt tac   1089
His Tyr Ala Leu Asp Leu Ile Cys Gln Arg Cys Asn Glu Leu Arg Tyr
290                 295                 300                 305

ctt tct gat att ttg gtt aat gag ata aaa gca aaa cgg ata caa ctc   1137
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10

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Leu Ser Asp Ile Leu Val Asn Glu Ile Lys Ala Lys Arg Ile Gln Leu
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agc agg acc ttc aaa atg cat aaa ctc cta cag cag gct cgt caa tgc   1185
Ser Arg Thr Phe Lys Met His Lys Leu Leu Gln Gln Ala Arg Gln Cys
            325             330             335

tgt gat gaa ggg gaa tgt ctt cta gct aat cag gaa ata gat aag ttt   1233
Cys Asp Glu Gly Glu Cys Leu Leu Ala Asn Gln Glu Ile Asp Lys Phe
            340             345             350

cag tct aaa gaa gat gct cag aaa gct ctc caa gac att gaa aat ttt   1281
Gln Ser Lys Glu Asp Ala Gln Lys Ala Leu Gln Asp Ile Glu Asn Phe
            355             360             365

ctt gaa atg gct cta ccc ttt ata aat tat gaa cct gaa aca ctg cag   1329
Leu Glu Met Ala Leu Pro Phe Ile Asn Tyr Glu Pro Glu Thr Leu Gln
370                 375             380                 385

tat gaa ttt gat gta ata tta tct cct gag ctt aag gtt caa atg aag   1377
Tyr Glu Phe Asp Val Ile Leu Ser Pro Glu Leu Lys Val Gln Met Lys
                390             395             400

act ata caa ctc aag ctt gaa aac att cga agt ata ttt gag aac cag   1425
Thr Ile Gln Leu Lys Leu Glu Asn Ile Arg Ser Ile Phe Glu Asn Gln
            405             410             415

cag gct ggt ttc agg aac ctg gca gat aag cat gtg agg cca atc caa   1473
Gln Ala Gly Phe Arg Asn Leu Ala Asp Lys His Val Arg Pro Ile Gln
            420             425             430

ttt gtg gta ccc aca cct gaa aat ttg gtc aca tct ggg aca cca ttt   1521
Phe Val Val Pro Thr Pro Glu Asn Leu Val Thr Ser Gly Thr Pro Phe
            435             440             445

ttt tca tct aaa caa ggg aag aag act tgg aga caa aat cag agc aac   1569
Phe Ser Ser Lys Gln Gly Lys Lys Thr Trp Arg Gln Asn Gln Ser Asn
450                 455             460                 465

tta aaa att gaa gtg gtg cct gat tgt cag gag aag aga agt tct ggt   1617
Leu Lys Ile Glu Val Val Pro Asp Cys Gln Glu Lys Arg Ser Ser Gly
                470             475             480

cca tcc tcc agt ttg gac aat ggc aat agc ttg gat gtt tta aag aac   1665
Pro Ser Ser Ser Leu Asp Asn Gly Asn Ser Leu Asp Val Leu Lys Asn
            485             490             495

cac gta cta aat gaa ctg ata cag act gag aga gtt tat gtt cga gaa   1713
His Val Leu Asn Glu Leu Ile Gln Thr Glu Arg Val Tyr Val Arg Glu
            500             505             510

ctg tat act gtt ttg ttg ggt tat aga gcg gag atg gat aat cca gag   1761
Leu Tyr Thr Val Leu Leu Gly Tyr Arg Ala Glu Met Asp Asn Pro Glu
            515             520             525

atg ttt gat ctt atg cca cct ctc ctg aga aat aaa aag gac att ctc   1809
Met Phe Asp Leu Met Pro Pro Leu Leu Arg Asn Lys Lys Asp Ile Leu
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11

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ttt gga aac atg gca gaa ata tat gaa ttc cat aac gac att ttc ttg    1857
Phe Gly Asn Met Ala Glu Ile Tyr Glu Phe His Asn Asp Ile Phe Leu
            550                     555                     560

agc agc ctg gaa aat tgt gct cat gct cca gaa aga gtg gga cct tgt    1905
Ser Ser Leu Glu Asn Cys Ala His Ala Pro Glu Arg Val Gly Pro Cys
            565                     570                     575

ttc ctg gaa agg aag gat gat ttt cag atg tat gca aaa tat tgt cag    1953
Phe Leu Glu Arg Lys Asp Asp Phe Gln Met Tyr Ala Lys Tyr Cys Gln
            580                     585                     590

aat aag ccc aga tca gaa aca att tgg agg aag tat tca gaa tgc gca    2001
Asn Lys Pro Arg Ser Glu Thr Ile Trp Arg Lys Tyr Ser Glu Cys Ala
            595                     600                     605

ttt ttc cag gaa tgt caa aga aag tta aaa cac aga ctt aga ctg gat    2049
Phe Phe Gln Glu Cys Gln Arg Lys Leu Lys His Arg Leu Arg Leu Asp
610                     615                     620                     625

tcc tat tta ctc aaa cca gtg caa cga atc act aaa tat cag tta ttg    2097
Ser Tyr Leu Leu Lys Pro Val Gln Arg Ile Thr Lys Tyr Gln Leu Leu
            630                     635                     640

ttg aag gag cta tta aaa tat agc aaa gac tgt gaa ggt tct gct ctg    2145
Leu Lys Glu Leu Leu Lys Tyr Ser Lys Asp Cys Glu Gly Ser Ala Leu
            645                     650                     655

ttg aag aag gca ctc gat gca atg ctg gat tta ctg aag tca gtt aat    2193
Leu Lys Lys Ala Leu Asp Ala Met Leu Asp Leu Leu Lys Ser Val Asn
            660                     665                     670

gat tct atg cat cag att gca ata aat ggc tat att gga aac tta aat    2241
Asp Ser Met His Gln Ile Ala Ile Asn Gly Tyr Ile Gly Asn Leu Asn
            675                     680                     685

gaa ctg ggc aag atg ata atg caa ggt gga ttc agc gtt tgg ata ggg    2289
Glu Leu Gly Lys Met Ile Met Gln Gly Gly Phe Ser Val Trp Ile Gly
690                     695                     700                     705

cac aag aaa ggt gct aca aaa atg aag gat ttg gct aga ttc aaa cca    2337
His Lys Lys Gly Ala Thr Lys Met Lys Asp Leu Ala Arg Phe Lys Pro
            710                     715                     720

atg cag cga cac ctt ttc ttg tat gaa aaa gcc att gtt ttt tgc aaa    2385
Met Gln Arg His Leu Phe Leu Tyr Glu Lys Ala Ile Val Phe Cys Lys
            725                     730                     735

agg cgt gtt gaa agt gga gaa ggc tct gac aga tac ccg tca tac agt    2433
Arg Arg Val Glu Ser Gly Glu Gly Ser Asp Arg Tyr Pro Ser Tyr Ser
            740                     745                     750

ttt aaa cac tgt tgg aaa atg gat gaa gtt gga atc act gaa tat gta    2481
Phe Lys His Cys Trp Lys Met Asp Glu Val Gly Ile Thr Glu Tyr Val
            755                     760                     765
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aaa ggt gat aac cgc aag ttt gaa atc tgg tat ggt gaa aag gaa gaa    2529
Lys Gly Asp Asn Arg Lys Phe Glu Ile Trp Tyr Gly Glu Lys Glu Glu
770             775             780             785

gtt tat att gtc cag gct tct aat gta gat gtg aag atg acg tgg cta    2577
Val Tyr Ile Val Gln Ala Ser Asn Val Asp Val Lys Met Thr Trp Leu
            790             795             800

aaa gaa ata aga aat att ttg ttg aag cag cag gaa ctt ttg aca gtt    2625
Lys Glu Ile Arg Asn Ile Leu Leu Lys Gln Gln Glu Leu Leu Thr Val
            805             810             815

aaa aaa aga aag caa cag gat caa tta aca gaa cgg gat aag ttt cag    2673
Lys Lys Arg Lys Gln Gln Asp Gln Leu Thr Glu Arg Asp Lys Phe Gln
        820             825             830

att tct ctt cag cag aat gat gaa aag caa cag gga gct ttt ata agt    2721
Ile Ser Leu Gln Gln Asn Asp Glu Lys Gln Gln Gly Ala Phe Ile Ser
        835             840             845

act gag gaa act gaa ttg gaa cac acc agc act gtg gtg gag gtc tgt    2769
Thr Glu Glu Thr Glu Leu Glu His Thr Ser Thr Val Val Glu Val Cys
850             855             860             865

gag gca att gcg tca gtt cag gca gaa gca aat aca gtt tgg act gag    2817
Glu Ala Ile Ala Ser Val Gln Ala Glu Ala Asn Thr Val Trp Thr Glu
            870             875             880

gca tca caa tct gta gaa atc tct gaa gaa cct gcg gaa tgg tca agc    2865
Ala Ser Gln Ser Val Glu Ile Ser Glu Glu Pro Ala Glu Trp Ser Ser
            885             890             895

aac tat ttc tac ccc act tat gat gaa aat gaa gaa gaa aat agg ccc    2913
Asn Tyr Phe Tyr Pro Thr Tyr Asp Glu Asn Glu Glu Glu Asn Arg Pro
        900             905             910

ctc atg aga cct gtg tcg gag atg gct ctc cta tat tga tgaagctact    2962
Leu Met Arg Pro Val Ser Glu Met Ala Leu Leu Tyr
        915             920             925

atgtcaaatg gcaagtagct ctttcctgcc tgcttctcag ctcatttgga aaaatactgc  3022

gcaaaagaca ttgagctcaa atgatgcaga tgttgttttc aggttaatgg acacgcaaag  3082

aaaccacagc acatacttct tttctttcat ttaataaagc ttttaattat ggtacgctgt  3142

cttttttaaa tcatgtattt aatgtgtcag atattgtgct tgaaagattc tcatctcaga  3202

atacttttgg acttgaaaat tatttcttct ctactttgta accaaatgca atcggtgtgc  3262

cttggattat ttagtttatt aatgaattaa gtcaaaatta cggctgcaaa atggctaagg  3322

tcaagtaaag cacaacatta tgatttaata tgcttttgtt gaaaccacag cttttgtgcc  3382

cattgtttta acttgtgtga aacaatacaa agcccagaaa ttcttttcgg ggcatgagta  3442
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13

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aattttgttc agggctactg tctgtatgtg cccagataaa attttcatga gagtagttta 3502

caaaagccgt atttaaaagt taatattttc acactttttt tctggatttc tgcttataat 3562

taatgtaact taaattagtt gtgctctgct attttctgta tatttcatgt tgtaattctt 3622

tttttcaaat aaaaattaat tcttcaggtt                                  3652
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<210> 6
<211> 925
<212> PRT
<213> Homo sapiens

<400> 6
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Met Ala Glu Ala Asn Pro Arg Arg Gly Lys Met Arg Phe Arg Arg Asn
  1               5                  10                  15

Ala Ala Ser Phe Pro Gly Asn Leu His Leu Val Leu Val Leu Arg Pro
               20                  25                  30

Thr Ser Phe Leu Gln Arg Thr Phe Thr Asp Ile Gly Phe Trp Phe Ser
           35                  40                  45

Gln Glu Asp Phe Met Pro Lys Leu Pro Val Val Met Leu Ser Ser Val
       50                  55                  60

Ser Asp Leu Leu Thr Tyr Ile Asp Asp Lys Gln Leu Thr Pro Glu Leu
 65                  70                  75                  80

Gly Gly Thr Leu Gln Tyr Cys His Ser Glu Trp Ile Ile Phe Arg Asn
                   85                  90                  95

Ala Ile Glu Asn Phe Ala Leu Thr Val Lys Glu Met Ala Gln Met Leu
               100                 105                 110

Gln Ser Phe Gly Thr Glu Leu Ala Glu Thr Glu Leu Pro Asp Asp Ile
           115                 120                 125

Pro Ser Ile Glu Glu Ile Leu Ala Ile Arg Ala Glu Arg Tyr His Leu
       130                 135                 140

Leu Lys Asn Asp Ile Thr Ala Val Thr Lys Glu Gly Lys Ile Leu Leu
145                 150                 155                 160

Thr Asn Leu Glu Val Pro Asp Thr Glu Gly Ala Val Ser Ser Arg Leu
               165                 170                 175

Glu Cys His Arg Gln Ile Ser Gly Asp Trp Gln Thr Ile Asn Lys Leu
               180                 185                 190

Leu Thr Gln Val His Asp Met Glu Thr Ala Phe Asp Gly Phe Trp Glu
           195                 200                 205

Lys His Gln Leu Lys Met Glu Gln Tyr Leu Gln Leu Trp Lys Phe Glu
       210                 215                 220
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14

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Gln Asp Phe Gln Gln Leu Val Thr Glu Val Glu Phe Leu Leu Asn Gln
225             230             235                     240

Gln Ala Glu Leu Ala Asp Val Thr Gly Thr Ile Ala Gln Val Lys Gln
                245             250                     255

Lys Ile Lys Lys Leu Glu Asn Leu Asp Glu Asn Ser Gln Glu Leu Leu
            260             265             270

Ser Lys Ala Gln Phe Val Ile Leu His Gly His Lys Leu Ala Ala Asn
        275             280             285

His His Tyr Ala Leu Asp Leu Ile Cys Gln Arg Cys Asn Glu Leu Arg
    290             295             300

Tyr Leu Ser Asp Ile Leu Val Asn Glu Ile Lys Ala Lys Arg Ile Gln
305             310             315                     320

Leu Ser Arg Thr Phe Lys Met His Lys Leu Leu Gln Gln Ala Arg Gln
            325             330             335

Cys Cys Asp Glu Gly Glu Cys Leu Leu Ala Asn Gln Glu Ile Asp Lys
            340             345             350

Phe Gln Ser Lys Glu Asp Ala Gln Lys Ala Leu Gln Asp Ile Glu Asn
        355             360             365

Phe Leu Glu Met Ala Leu Pro Phe Ile Asn Tyr Glu Pro Glu Thr Leu
    370             375             380

Gln Tyr Glu Phe Asp Val Ile Leu Ser Pro Glu Leu Lys Val Gln Met
385             390             395                     400

Lys Thr Ile Gln Leu Lys Leu Glu Asn Ile Arg Ser Ile Phe Glu Asn
            405             410             415

Gln Gln Ala Gly Phe Arg Asn Leu Ala Asp Lys His Val Arg Pro Ile
        420             425             430

Gln Phe Val Val Pro Thr Pro Glu Asn Leu Val Thr Ser Gly Thr Pro
        435             440             445

Phe Phe Ser Ser Lys Gln Gly Lys Lys Thr Trp Arg Gln Asn Gln Ser
    450             455             460

Asn Leu Lys Ile Glu Val Val Pro Asp Cys Gln Glu Lys Arg Ser Ser
465             470             475                     480

Gly Pro Ser Ser Ser Leu Asp Asn Gly Asn Ser Leu Asp Val Leu Lys
            485             490             495

Asn His Val Leu Asn Glu Leu Ile Gln Thr Glu Arg Val Tyr Val Arg
        500             505             510

Glu Leu Tyr Thr Val Leu Leu Gly Tyr Arg Ala Glu Met Asp Asn Pro
        515             520             525
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15

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Glu Met Phe Asp Leu Met Pro Pro Leu Leu Arg Asn Lys Lys Asp Ile
    530             535             540

Leu Phe Gly Asn Met Ala Glu Ile Tyr Glu Phe His Asn Asp Ile Phe
545             550             555             560

Leu Ser Ser Leu Glu Asn Cys Ala His Ala Pro Glu Arg Val Gly Pro
            565             570             575

Cys Phe Leu Glu Arg Lys Asp Asp Phe Gln Met Tyr Ala Lys Tyr Cys
            580             585             590

Gln Asn Lys Pro Arg Ser Glu Thr Ile Trp Arg Lys Tyr Ser Glu Cys
        595             600             605

Ala Phe Phe Gln Glu Cys Gln Arg Lys Leu Lys His Arg Leu Arg Leu
    610             615             620

Asp Ser Tyr Leu Leu Lys Pro Val Gln Arg Ile Thr Lys Tyr Gln Leu
625             630             635             640

Leu Leu Lys Glu Leu Leu Lys Tyr Ser Lys Asp Cys Glu Gly Ser Ala
            645             650             655

Leu Leu Lys Lys Ala Leu Asp Ala Met Leu Asp Leu Leu Lys Ser Val
            660             665             670

Asn Asp Ser Met His Gln Ile Ala Ile Asn Gly Tyr Ile Gly Asn Leu
            675             680             685

Asn Glu Leu Gly Lys Met Ile Met Gln Gly Gly Phe Ser Val Trp Ile
    690             695             700

Gly His Lys Lys Gly Ala Thr Lys Met Lys Asp Leu Ala Arg Phe Lys
705             710             715             720

Pro Met Gln Arg His Leu Phe Leu Tyr Glu Lys Ala Ile Val Phe Cys
            725             730             735

Lys Arg Arg Val Glu Ser Gly Glu Gly Ser Asp Arg Tyr Pro Ser Tyr
            740             745             750

Ser Phe Lys His Cys Trp Lys Met Asp Glu Val Gly Ile Thr Glu Tyr
            755             760             765

Val Lys Gly Asp Asn Arg Lys Phe Glu Ile Trp Tyr Gly Glu Lys Glu
    770             775             780

Glu Val Tyr Ile Val Gln Ala Ser Asn Val Asp Val Lys Met Thr Trp
785             790             795             800

Leu Lys Glu Ile Arg Asn Ile Leu Leu Lys Gln Gln Glu Leu Leu Thr
            805             810             815

Val Lys Lys Arg Lys Gln Gln Asp Gln Leu Thr Glu Arg Asp Lys Phe
            820             825             830
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Gln Ile Ser Leu Gln Gln Asn Asp Glu Lys Gln Gln Gly Ala Phe Ile
        835   840   845

Ser Thr Glu Glu Thr Glu Leu Glu His Thr Ser Thr Val Val Glu Val
    850   855   860

Cys Glu Ala Ile Ala Ser Val Gln Ala Glu Ala Asn Thr Val Trp Thr
865   870   875   880

Glu Ala Ser Gln Ser Ala Glu Ile Ser Glu Glu Pro Ala Glu Trp Ser
            885   890   895

Ser Asn Tyr Phe Tyr Pro Thr Tyr Asp Glu Asn Glu Glu Glu Asn Arg
            900   905   910

Pro Leu Met Arg Pro Val Ser Glu Met Ala Leu Leu Tyr
        915   920   925